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10/830,181	04/22/2004	Klaus-Dieter Nittel	CHEMMT-206.1 CON	7728
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FULBRIGHT & JAWORSKI, LLP			EXAMINER	
666 FIFTH AVE			ZHENG, LOIS L	
NEW YORK, NY 10103-3198				
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

**Application No.**

10/830,181

**Applicant(s)**

NITTEL ET AL.

**Examiner**

LOIS ZHENG

**Art Unit**

1793

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 28 April 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 8-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 8-16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SF/ICE)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 24 April 2008 has been entered.

### ***Status of Claims***

2. Claim 8 is amended in view of applicant's amendment filed 26 March 2008. Therefore, claims 8-16 are currently under examination.

### **Claim Rejections - 35 USC § 103**

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 8-10 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hansen et al. US 3,860,455(Hansen) in view of Clifford et al. US 2,375,468 (Clifford).

Hansen teaches a manganese phosphate coating method for treating steel surfaces utilizing a coating composition that overlaps the composition instantly claimed,

including the concentrations ranges of iron(II), manganese, phosphate, nitrate, wherein the free acid, total acid and S-value (ratio of free phosphate to total phosphate ions) are also overlapping, as recited in claims 8 and 10 (col. 2, lines 10-33). Hansen further teaches the addition of additional components, including nickel, in a range that overlaps the claimed range, as recited in claim 13 (col. 2, line 65 to col. 3, line 7).

However, Hansen does not explicitly teach the claimed nitroguanidine and its claimed concentration.

Clifford teaches that accelerators, such as nitroguanidine, accelerate the action of manganese phosphating conversion coating solutions "to so great an extent that it can be affected in the cold" (col. 2, lines 16-27, 48-51; Example 1).

Therefore, one of ordinary skill in the art would have found the invention to be obvious because one of ordinary skill in the art would have been motivated to add nitroguanidine to the coating solution of Hansen in order to accelerate the coating method and allow the coating to take place in a cold environment as taught in Clifford (col. 2, lines 48-51).

In addition, one of ordinary skill in the art at the time the invention was made would have considered the invention to have been obvious because the coating composition taught by the Hansen in view of Clifford overlaps that of the instant claims, In re Peterson, 65 USPQ2d 1379, In re Malagari, 182 USPQ 549, and MPEP 2144.05.

Regarding the claimed manganese phosphate thickness and average maximum roughness depth, since the coating thickness varies depending upon the length of the coating time and the coating time as taught by Hansen(col. 4 lines 54-57) overlaps the

coating time as discussed in the instant specification. Therefore, one of ordinary skill in the art would have found the claimed coating thickness and the claimed average maximum roughness obvious since Hansen in view of Clifford teaches a coating process that uses a substantially the same coating solution for substantially the same period of time as the process disclosed in the instant invention.

5. Claim 11-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hansen in view of Clifford, and further in view of Bittner et al. 5,795,408 (Bittner).

The teachings of Hansen in view of Clifford are applied as set forth above in paragraph 4.

However, Hansen in view of Clifford do not explicitly teach the addition of the claimed complex-forming agent.

Bittner teaches the addition of complexing agents for the alloying constituents of steel, including citric acid, to phosphating solutions in order to stop or reduce the formation of sludge, while allowing the formation of a phosphate coating on a galvanized surface, as recited in claims 11-12 (col. 2, lines 35-44; col. 3, lines 36-45).

Therefore, one of ordinary skill in the art would have found the invention to be obvious because one of ordinary skill in the art would have been motivated to add a complexing agent, such as citric acid, to the composition of Hansen in view of Clifford in order to provide the desirable effect of stopping or reducing the formation of sludge, while allowing the formation of a phosphate film on the surface of a galvanized substrate, as recited in Bittner (col. 2, lines 35-44).

6. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hansen in view of Clifford, and further in view of Oei et al. 4,824,490 (Oei).

The teachings of Hansen in view of Clifford are applied as set forth above in paragraph 4 above.

However, Hansen in view of Clifford do not explicitly teach the replacement of the manganese ions with manganese carbonate.

Oei teaches the use of manganese carbonate to control the concentration of free acid (col. 3, lines 4-8)

Therefore, one of ordinary skill in the art would have found the invention to be obvious because one of ordinary skill in the art would have been motivated to add manganese carbonate to the composition of Hansen in order to provide the desirable effect of controlling the concentration of free acid, as taught in Oei (col. 3, lines 4-6).

7. Claims 15 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hansen in view of Clifford, and further view of Shaw 2,987,427 (Shaw).

The teachings of Hansen in view of Clifford are applied as set forth above in paragraph 4 above.

However, Hansen in view of Clifford do not explicitly teach the step of subjecting the work pieces to sliding friction or the fabrication of the work pieces into axles, gear mechanisms and engine pistons.

Shaw teaches an example of a nitroguanidine manganese phosphate coated engine piston (i.e. a work piece subjected to sliding friction) (col. 5, lines 60-75; Example V). Shaw further teaches that the coating of the sliding work piece with

manganese phosphate has the desirable effect of providing a wear resistant coating that liberates less sulfur dioxide and/or other chemicals (col. 1, lines 62-68):

Therefore, one of ordinary skill in the art would have found the invention to be obvious because one of ordinary skill in the art would have been motivated to subject the coated work piece to sliding friction or to fabricate the work piece into an engine piston because the use in said applications is known, as taught in Shaw and one of ordinary skill in the art would have been motivated to provide a sliding surface that liberates less sulfur dioxide and/or other chemicals, as taught in Shaw (col. 1, lines 62-67).

***Response to Declaration***

8. The Declaration filed under 37 CFR 1.132 filed 4 October 2007 is insufficient to overcome the rejection of claims 8-10 and 13 based upon Hensen in view of Clifford as set forth in the last Office Action because:

In the Declaration, Applicant repeated the bath of Experiment C in Example 1 of Hansen and added various amounts of nitroguanidine with or without the addition of Fe to form different formulations(i.e. Variant a)-d)). Applicant further show that the comparison results of these formulations in Table 1 and concludes that the gasing time is significantly reduced by the addition of nitroguanidine, which also indicates a significantly shorter coating time.

However, the Examiner does not find these results convincing. First, the base formulation of the coating solution without nitroguanidine as shown in Table 1 is slightly different from Experiment C of Example 1 of Hansen. For example, Experiment C of

Hansen uses 36.7g/l of  $P_2O_5$ , Applicant's formulations Variant a)-d) use 36.9 of  $P_2O_5$ . Experiment C of Hansen uses 0.33g/l of Ni, Applicant's formulations Variant a)-d) use 0.34g/l of Ni. The Examiner cannot determine the whether or not the results are affected by these minor differences in base formulations. Even if the Examiner were to assume that the minor formulation differences are of no significance, the comparison results are still not convincing because the results of shorter coating time with the addition of nitroguanidine is not unexpected. Clifford already teaches that nitroguanidine is an accelerator. Therefore, its ability to speed up the coating process when added to the coating solution of Hansen is entirely expected. Applicant's experiment only further proves that the role of nitroguanidine as an accelerator. Furthermore, Applicant's Variant a)-d) coating formulations are also not sufficient to show criticality of the claimed coating composition since they are not commensurate with the scope of the invention(i.e. not sufficient number of data points to cover the entire claimed ranges to show the criticality of claimed ranges). The Examiner would like to point out that the best results are derived from formulation of Variant C as shown in the Declaration, which includes the presence of Fe in addition to nitroguanidine.

Applicant's arguments presented in paragraphs 7-9 are also not persuasive since they are based on Applicant's experience and knowledge in the art without factual evidence data to support Applicant's assertions. Therefore, these arguments are considered as conclusive statement, and would require supporting evidence data to be of probative value.



In paragraphs 10-13, Applicant further shows various coating formulations based on Example 1 of Clifford and draws conclusions that these coating formulations are extremely poor.

Example 1 of Clifford shows that the manganese phosphate coating solution having a normality of about N/100 free acid and N/5 total acid with the addition of 0.3% of nitroguanidine. Applicant's coating formulations as discussed in paragraph 11 only shows the addition of 3g/l of nitroguanidine in formulations 3)-4). There are no discussions of the amount of nitroguanidine in the same percentage unit as taught by Clifford. There are also no discussions on the free acid and total acid of each of Applicant's formulations. Therefore, the Examiner does not find Applicant's coating results based on Example 1 of Clifford convincing.

Lastly, Applicant's prediction of high Fe content in the coating solution of Hansen is not persuasive because Applicant has not presented supporting factual evidence to substantiate Applicant's allegations. In addition, the amount of Fe in the coating solution of Hansen also depends on the coating time, which further depends on the desired coating thickness. Therefore, the Examiner is not convinced that the Fe content in the coating solution of Hansen is higher than claimed.

#### ***Response to Arguments***

9. Applicant's arguments filed 26 March 2008 have been fully considered but they are not persuasive.

Applicant's arguments are not persuasive partially for the same reasons as stated in paragraph 8 above.

Applicant further argues that Hansen does not teach or is not interested in how to limit the Fe content in the phosphate coating bath.

The Examiner does not find Applicant's argument persuasive since Clifford teaches that nitroguanidine can be added to manganese phosphate coating solutions to speed up the coating process. By adding nitroguanidine as taught by Clifford into the manganese phosphate coating solution of Hansen, the coating process of Hansen would have been accelerated or the coating time would have been shortened, which would have led to the predictable results of lower Fe content in the coating solution and less sludge formation.

Applicant's further arguments regarding the addition of polyphosphoric acid or polyphosphate as taught by Hansen are also not persuasive since the instant claims use open transitional phrase "comprising" which does not limit the presence of additional components such as polyphosphoric acid or polyphosphate of Hansen.

Applicant's further argues that Shaw teaches cold forming of phosphate coated metal material that is further coated with a layer of lubricant, therefore, does not teach the application of sliding friction with phosphate coating.

The Examiner does not find Applicant's argument persuasive since the instant claims use open transitional phrase "comprising" when describing the claimed process. The instant claims do not exclude additional step of lubricant application as taught by Shaw. Therefore, the phosphate treated metallic workpiece as taught by Hansen in view of Clifford and Shaw, although might be coated with a lubricant, is subject to sliding friction as claimed.

Applicant further argues that Oei teaches away from the instant invention because Oei teaches a zinc phosphating process.

Although Oei teaches presence of zinc in its coating solution, Oei also teaches the presence of manganese in its coating solution(abstract). Therefore, it is the Examiner's position that Oei does not teach away from the instant invention since the coating solution of Oei is also a manganese phosphate coating solution. In addition, the instant claims also do not exclude presence of zinc in the coating solution since the instant claims use open transitional phrase "comprising" when describing the phosphating solution.

Applicant further argues that Bittner's zinc tri-cation phosphate coating is not suitable for sliding friction processes. Unlike Bittner, phosphate coating is generated on metallic zinc coating according to the instant main claim. Furthermore, Bittner does not teach the effect if tartaric acid as complexing agent as used in the example.

The Examiner does not find Applicant's arguments persuasive since rejection ground for the claimed complex agent is based on the combination of Hansen in view of Clifford and Bittner, not based on Bittner alone. In addition, Bittner also teaches the claimed citric acid as complexing agent. Lastly the phosphate coating is formed on iron or steel surfaces according to the instant claim 1, not to zinc coating as alleged by the Applicant.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lois Zheng whose telephone number is (571) 272-1248. The examiner can normally be reached on 8:30am - 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (571) 272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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LLZ